11. The next screen that appears will depend on your security selection. Make sure that the security mode is the same for all the devices on your network.

    - WEP. From this screen, select the level of encryption, and enter a passphrase, which will generate the WEP key for you automatically, or you can enter the key manually.

      The WEP key can consist of the letters "A" through "F" and the numbers "0" through "9" and should be 10 characters in length for 64-bit encryption, 26 characters in length for 128-bit encryption, or 32 characters for 152-bit encryption.

Figure 5-10: Wireless-A Security - WEP

bit: *a binary digit*

encryption: *encoding data transmitted in a network*

    - PSK (Pre-Shared Key) you have two encryption options, TKIP and AES, with dynamic encryption keys. Select the type of algorithm, **TKIP** or **AES**. Enter a Passphrase of 8-32 characters.

Then, click the **Next** button to continue or **Back** to return to the previous page.

For more information on wireless security, refer to Appendix B: Wireless Security.

Figure 5-11: Wireless-A Security - PSK

12. The Wireless-G Settings screen should now appear. Enter your wireless 802.11g network's SSID, select the channel at which the network broadcasts its wireless signal, and select the security. Then, click the **Next** button to continue or **Back** to return to the previous page.

    - SSID. The SSID is the unique name shared among all points in a wireless network. The SSID must be identical for all points in the wireless network. It is case sensitive and must not exceed 32 characters, which may be any keyboard character. Make sure this setting is the same for all points in your wireless network.

    - Channel. Select the appropriate channel from the list provided to correspond with your network settings, between 1 and 11. All points in your wireless network must use the same channel in order to function correctly.

    - SSID Broadcast. When wireless clients survey the local area for wireless networks to associate with, they will detect the SSID broadcast by the Access Point. To broadcast the Access Point's SSID, keep the default setting, **Enabled**. If you do not want to broadcast the Access Point's SSID, then select **Disabled**.

    - Security. Two wireless security methods are available: WEP (Wired Equivalent Privacy) and PSK (Pre-Shared Key), which is the stronger security method. Select **WEP** or **PSK** from the drop-down menu. All devices in your wireless network must use the same security method.

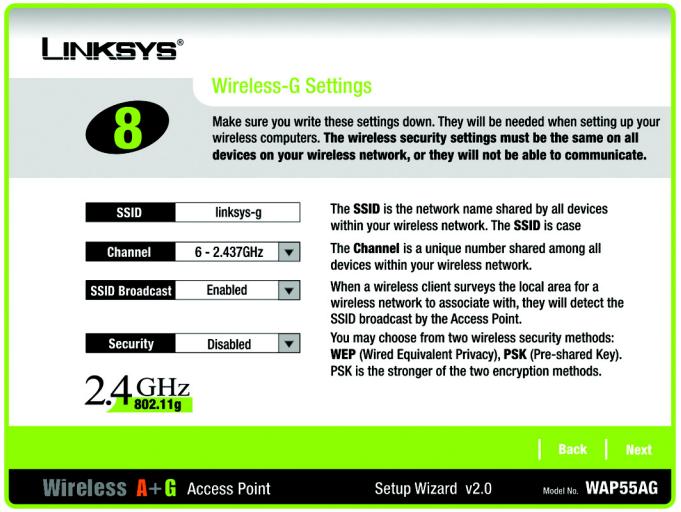

Figure 5-12: Wireless-G Settings

13. The next screen that appears will depend on your security selection. Make sure that the security mode is the same for all the devices on your network.

    - WEP. From this screen, select the level of encryption, and enter a passphrase, which will generate the WEP key for you automatically, or you can enter the key manually.

      The WEP key can consist of the letters "A" through "F" and the numbers "0" through "9" and should be 10 characters in length for 64-bit encryption or 26 characters in length for 128-bit encryption.

Figure 5-13: Wireless-G Security - WEP

- PSK (Pre-Shared Key) you have two encryption options, TKIP and AES, with dynamic encryption keys. Select the type of algorithm, **TKIP** or **AES**. Enter a Passphrase of 8-32 characters.

Then, click the **Next** button to continue or **Back** to return to the previous page.

For more information on wireless security, refer to Appendix B: Wireless Security.

Figure 5-14: Wireless-G Security - PSK

14. The Confirm New Settings screen will appear to allow you to check your settings. If you want to change a setting, click the **Back** button until you find the correct screen. If your settings are correct, click the **Save** button. If you want to cancel the installation, you may click **Exit**.

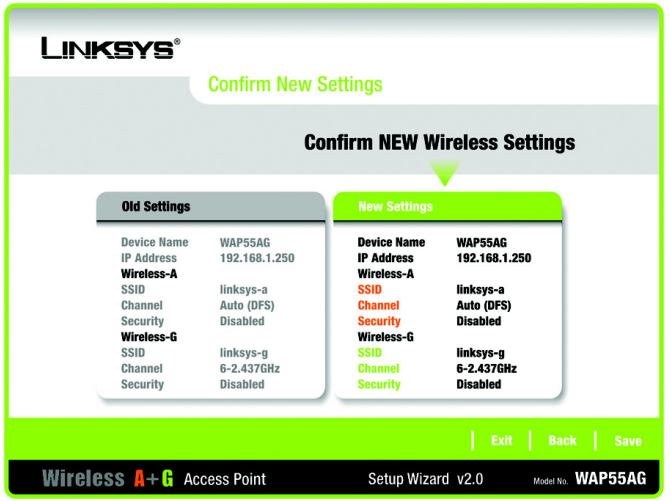

Figure 5-15: Confirm New Settings

15. The configuration performed with the Setup Wizard is complete. To configure any other Access Points in your network, you can run this Setup Wizard again.

    Click the **Exit** button to exit the Setup Wizard.

Figure 5-16: Congratulations

For more advanced configuration, you can go to Chapter 6: Configuring the Dual-Band Wireless A + G Access Point.

Chapter 6: Configuring the Dual-Band Wireless A + G Access Point

Overview

The Access Point has been designed to be functional right out of the box. However, if you'd like to change these settings, the Access Point can be configured through your web browser with the Web-Based Utility or Setup Wizard.

For your convenience, use the Access Point's Web-based Utility to administer it. This chapter will explain all of the functions in this Utility. The Utility can be accessed via Microsoft Internet Explorer or Netscape Navigator through use of a computer connected with an Ethernet cable to the Access Point.

For a basic network setup, most users only have to use the following screens of the Utility:

- Setup
  On the *Network Setup* screen, you can configure your basic network settings.
- Wireless
  on the Basic Wireless screen, you can configure the wireless settings.
- Administration
  Click the **Administration** tab and then select the **Password** screen. The Access Point's default password is **admin**. To secure the Access Point, change the Password from its default.

Have You: Enabled TCP/IP on your PCs? PCs communicate over the network with this protocol. Refer to Appendix D: Windows Help for more information on TCP/IP.

browser: *an application that provides a way to look at and interact with all the information on the World Wide Web.*

Navigating the Utility

There are four main tabs: Setup, Wireless, Administration, and Status. Additional screens will be available from the main tabs.

Setup

- *Network Setup*. You can configure the Access Point's network settings on this screen.

Wireless

- *Basic Wireless Settings*. The selections under this heading allow you to configure the Access Point's connection of your Wireless-A (802.11a) and Wireless-G (802.11g) networks.
- *Wireless Security*. The Wireless Security settings configure the security of your wireless network.
- *Wireless MAC Filter*. Wireless access can be filtered by using the MAC addresses of the wireless devices.
- *Advanced Wireless Settings*. These are advanced wireless settings. In most cases, these settings do not need to be changed.

Administration

- *Password*. The Password screen allows you to change the Access Point's password.
- *Log*. The Access Point can keep logs of wireless activity.
- *Factory Defaults*.This screen allows you to restore the Access Point's configuration to its factory default settings.
- *Firmware Upgrade*. This screen allows you to upgrade the Access Point's firmware. Do not upgrade the firmware unless you are experiencing problems with the Access Point or the new firmware has a feature you want to use.

Status

- *Local Network*. The Status tab displays the current status of the Access Point's local network.
- *Wireless*. The Wireless screen on the Status Tab displays the status of your Wireless-A and/or Wireless-G networks.

Accessing the Utility

To access the Web-based Utility of the Access Point, launch Internet Explorer or Netscape Navigator, and enter the Access Point's default IP address, **192.168.1.246**, in the *Address* field. Press the **Enter** key. Leave the User Name field blank. The first time you open the Web-Based Utility, use the default password **admin**. You can set a new password from the Password tab.

NOTE: If you don't remember the Access Point's IP address, you can run the Setup Wizard to locate it.

The Setup Tab

Network Setup

The *Network Setup* screen, the first screen, allows you to change the Access Point's general settings.

- **Device Name**. The Device Name is a unique name given to the Access Point to prevent confusion when using multiple Access Points.
- **Configuration Type**. Select **Automatic Configuration - DHCP** if your network has a router or DHCP server. Select **Static IP Address** if your network requires a static IP address.
- **IP Address**. This IP address must be unique to your network. (The default IP address is 192.168.1.246) Leave the default IP address, unless you know your network's IP address is different.
- **Subnet Mask**. The Access Point's Subnet Mask must be the same as your Ethernet network. Leave the default Subnet Mask, unless you know your network's subnet mask is different.
- **Default Gateway**. This IP address should be the IP address of the gateway device that allows for contact between the Internet and the local network. Leave the default Default Gateway blank, unless you know your network's default gateway.

Change these settings as described here and click the **Save Settings** button to apply your changes or **Cancel Changes** to cancel your changes. Help information is shown on the right-hand side of the screen. For additional information, click **More**.

Figure 6-1: Automatic Configuration - DHCP

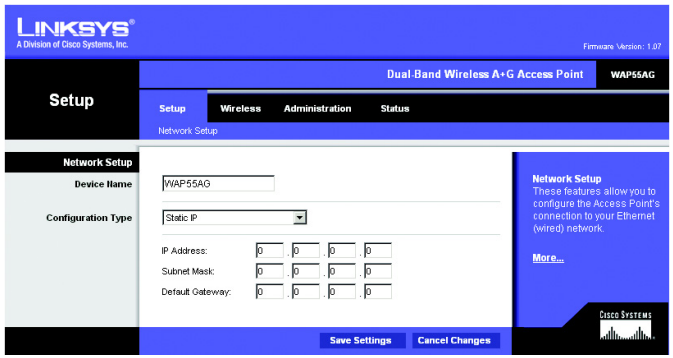

Figure 6-2: Static IP Address

static ip address: *a fixed address assigned to a computer or device connected to a network*

The Wireless Tab

The Wireless Tab - Basic Wireless Settings

The selections under this heading allow you to configure the Access Point's connection to your Wireless-A (802.11a) and Wireless-G (802.11g) networks.

Wireless-A

- **Mode**. To enable Wireless-A (802.11a) networking, select **Enabled**. Otherwise, select **Disabled**.
- **Turbo Mode**. Using this mode enables high-speed connections but severely limits range. To function, Turbo Mode must be enabled on both the Access Point and wireless PCs.To increase the speed, select **Enabled**. (Keep in mind that the Access Point's range diminishes in Turbo Mode.) If you do not want to use Turbo Mode, select **Disabled**. The turbo mode is up to 108Mbps.
- **Network Name (SSID)**. The SSID is the unique name shared among all points in a wireless network. The SSID must be identical for all points in the wireless network. It is case sensitive and must not exceed 32 characters, which may be any keyboard character. Make sure this setting is the same for all points in your wireless network.
- **Channel**. Select the appropriate channel from the list provided to correspond with your network settings. All devices in your wireless network must broadcast on the same channel in order to communicate. If you want the Router to automatically scan for a clear channel, then select **Auto (DFS)**
- **SSID Broadcast**. When wireless clients survey the local area for wireless networks to associate with, they will detect the SSID broadcast by the Access Point. To broadcast the Access Point's SSID, keep the default setting, **Enabled**. If you do not want to broadcast the Access Point's SSID, then select **Disabled**.

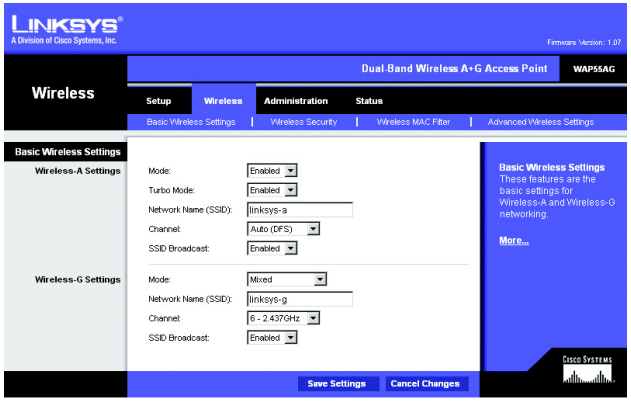

Figure 6-3: Basic Wireless Settings

firmware: *programming code that runs a networking device*

dhcp: *a networking protocol that allows administrators to assign temporary IP addresses to network computers by "leasing" an IP address to a user for a limited amount of time, instead of assigning permanent IP addresses.*

static ip address: *a fixed address assigned to a computer or device that is connected to a network*

subnet mask: *an address code that determines the size of the network*

Wireless-G

- **Mode**. From this drop-down menu, you can select the wireless standards running on your network. If you have both 802.11g and 802.11b devices in your network, keep the default setting, **Mixed**. If you have only 802.11g devices, select **Wireless-G Only**. If you have only 802.11b devices, select **Wireless-B Only**. If you do not have any 802.11g and 802.11b devices in your network, select **Disabled**.

- **Network Name (SSID)**. The SSID is the unique name shared among all points in a wireless network. The SSID must be identical for all points in the wireless network. It is case sensitive and must not exceed 32 characters, which may be any keyboard character. Make sure this setting is the same for all points in your wireless network.

- **Channel**. Select the appropriate channel from the list provided to correspond with your network settings, between 1 and 11. All points in your wireless network must use the same channel in order to function correctly.

- **SSID Broadcast**. When wireless clients survey the local area for wireless networks to associate with, they will detect the SSID broadcast by the Access Point. To broadcast the Access Point's SSID, keep the default setting, **Enabled**. If you do not want to broadcast the Access Point's SSID, then select **Disabled**.

Change these settings as described here and click the **Save Settings** button to apply your changes or **Cancel Changes** to cancel your changes. Help information is shown on the right-hand side of the screen. For additional information, click **More**.

The Wireless Tab - Wireless Security

Wireless Security

The Wireless Security settings configure the security of your wireless network. There are three wireless security mode options supported by the Access Point: WEP, Pre-Shared Key, and Pre-Shared Key + RADIUS. (WEP stands for Wired Equivalent Privacy, Pre-Shared Key is a security standard stronger than WEP encryption, and RADIUS stands for Remote Authentication Dial-In User Service.) For detailed instructions on configuring wireless security for the Access Point, turn to "Appendix B: Wireless Security."

WEP. WEP is a basic encryption method, which is not as secure as Pre-Shared Key. To use WEP, select a Default Transmit Key (choose which Key to use), and a level of WEP encryption, **40/ 64 bits**, **128 bits, or 152 bits**. Then either generate a WEP key automatically using the Passphrase or enter the WEP key manually.

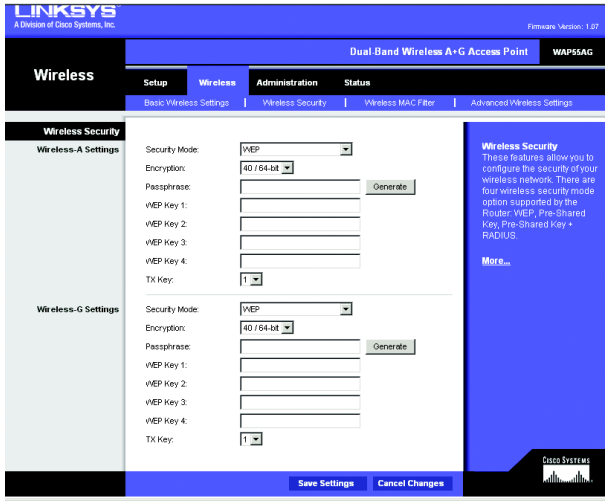

Figure 6-4: WEP

passphrase: *used much like a password, a passphrase simplifies the WEP encryption process by automatically generating the WEP encryption keys for Linksys products*

tkip: *a wireless encryption protocol that provides dynamic encryption keys for each packet transmitted*

Pre-Shared Key. Pre-Shared Key gives you two encryption methods, TKIP and AES, with dynamic encryption keys. Select the type of algorithm, **TKIP** or **AES**. Enter a Pre-Shared Key Shared Key of 8-32 characters. Then enter a Group Key Renewal period, which instructs the Access Point how often it should change the encryption keys.

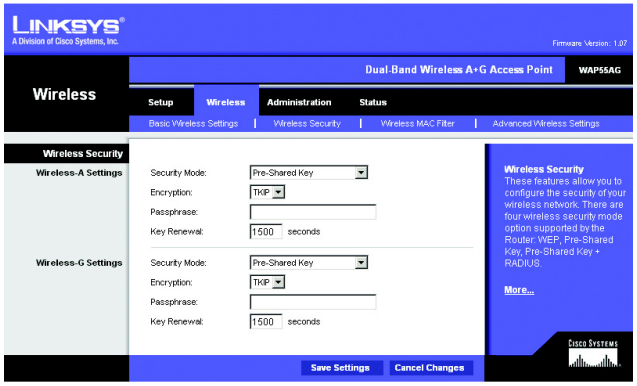

Figure 6-5: Pre-Shared Key

Pre-Shared Key + RADIUS. This option features Pre-Shared Key used in coordination with a RADIUS server. (This should only be used when a RADIUS server is connected to the Access Point.) First, select the type of Pre-Shared Key algorithm you want to use, **TKIP** or **AES**. Enter the RADIUS server's IP Address and port number, along with a key shared between the Access Point and the server. Last, enter a Key Renewal Timeout, which instructs the Access Point how often it should change the encryption keys.

Change these settings as described here and click the **Save Settings** button to apply your changes or **Cancel Changes** to cancel your changes. Help information is shown on the right-hand side of the screen. For additional information, click **More**. For detailed instructions on configuring wireless security for the Access Point, turn to "Appendix B: Wireless Security."

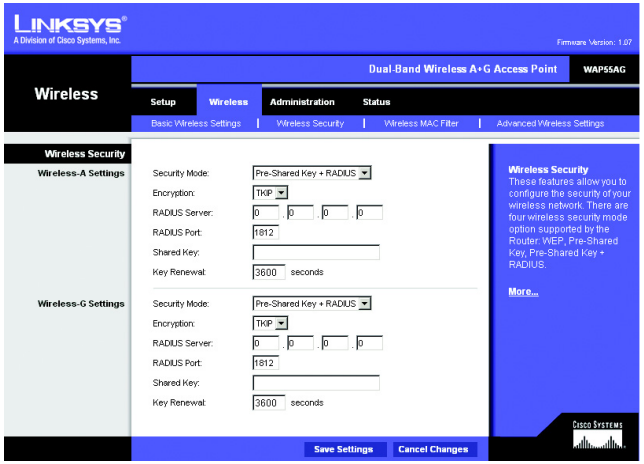

Figure 6-6: Pre-Shared Key + Radius

The Wireless Tab - Wireless MAC Filter

Wireless network access can be filtered by using the MAC addresses of the wireless devices.

Access Restrictions

To filter wireless users by MAC Address, either permitting or blocking access, click **Enabled**. If you do not wish to filter users by MAC Address, select **Disabled**.

Prevent PCs listed below from accessing the wireless network. Clicking this radio button will block wireless access by MAC Address.

Permit PCs listed below to access the wireless network. Clicking this radio button will allow wireless access by MAC Address.

Wireless Client List

Wireless Client List. Click the **Wireless Client List** button to display a list of network users by MAC Address.From the *To Sort by* drop-down menu, you can sort the table by Client Name, Interface, IP Address, MAC Address, or Status. If you want to add any of the wireless clients to the Wireless MAC Filter List, then click the **Save to Wireless Client List** checkbox and then click the **Save Settings** button. Click the **Cancel Changes** button to cancel your changes. To view the most up-to-date information, click the **Refresh** button. To exit this screen, click the **Close** button.

List users, by MAC Address, whose wireless access you want to control.

Change these settings as described here and click the **Save Settings** button to apply your changes or **Cancel Changes** to cancel your changes. Help information is shown on the right-hand side of the screen. For additional information, click **More**.

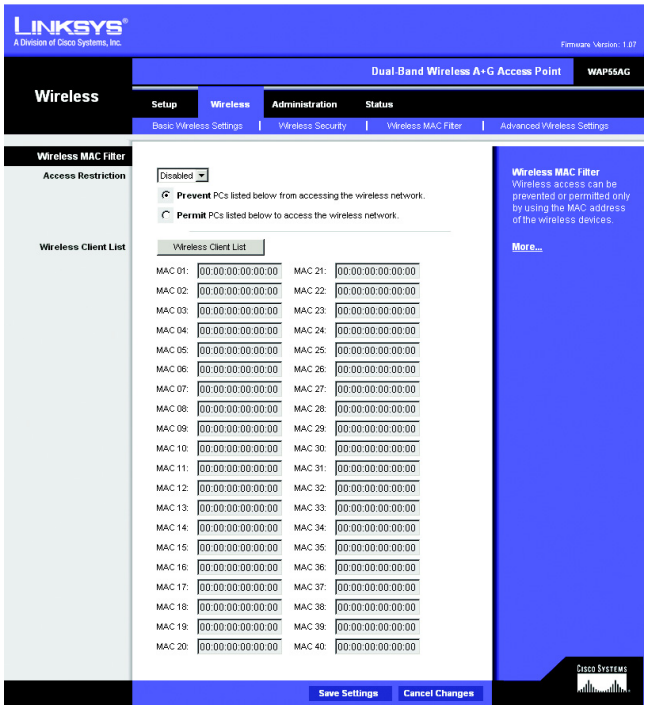

Figure 6-7: Wireless MAC Filter

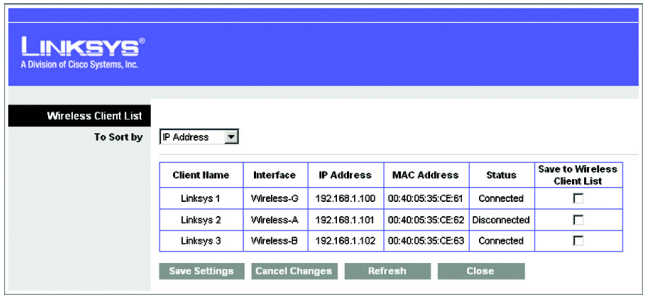

Figure 6-8: Wireless Client List